

Claims

What is claimed is:

- 5 1. A optical fiber pigtail assembly comprising a span of optical fiber having an end for receiving light from a laser to be optically coupled therewith, wherein a first region of said optical fiber about the end is metallized for soldering in a fixed position relative to said laser and wherein a second region of the optical fiber downstream and spaced from the first region is metallized for further fixedly mounting said fiber tail assembly relative to said laser, and wherein an other region
10 of said optical fiber between said first region and said second region is absent solder to minimize heating of said optical fiber when high intensity light propagates therethrough.
- 15 2. An optical fiber pigtail assembly as defined in claim 1, wherein the first region is metallized with a first band of metal surrounding said fiber, and wherein said second region is metallized with a second band of metal surrounding said fiber, and wherein the other region is
20 band of optical fiber that is stripped of a buffer remaining on a length of the optical fiber adjacent to said span.
- 25 3. An optical fiber pigtail assembly as defined in claim 1, wherein said laser is disposed within a housing having a snout, and wherein the end of the span of optical fiber has a lens formed therein and wherein the fiber is mounted within the housing and soldered at the first and second metallized regions, the second metallized region being soldered at the snout.
- 30 4. An optical fiber pigtail assembly as defined in claim 1 wherein the other region is coated with a protective coating after a buffer is stripped away.
5. An optical fiber pigtail assembly as defined in claim 1 wherein at least a portion of the span has a cladding layer stripped away prior to providing the metallized regions.
6. An optical fiber pigtail assembly as defined in claim 5, wherein at least the other layer is coated with a protective coating after the cladding is stripped away.

7. An optical fiber pigtail assembly as defined in claim 6, wherein the fiber in the first, second and other layer are pre-coated with a protective dielectric layer prior to coating the first and second regions with metal.

5 8. An optical fiber pigtail assembly comprising:

a) a laser disposed within a housing; and,

10 b) an optical fiber pigtail comprised of an optical fiber disposed within an opening of said housing, said optical fiber pigtail having an end for coupling light there into from the laser diode, the optical fiber pigtail having a first region about the end that is metallized and soldered fixedly with respect to said housing, the optical fiber pigtail having a second metallized region spaced from the first region by an other region wherein the second region is soldered to the housing about the opening to provide a seal therewith, said other region being absent of metal to lessen heating that
15 may otherwise occur in the presence of a high intensity light from the laser passing therethrough.

9. An optical fiber pigtail assembly as defined in claim 8 wherein an end of the optical fiber pigtail has a lens for coupling light from the laser into the fiber, and the laser is a laser diode.

20 10. An optical fiber pigtail assembly as defined in claim 8, wherein at least the other region is coated with a material to protect said fiber pigtail from handling.

11. An optical fiber pigtail assembly as defined in claim 10, wherein the first and second regions are coated with said material prior to being metallized.

25

12. An optical fiber pigtail assembly as defined in claim 8, wherein the first second and other regions form discernable bands about the optical fiber pigtail.

13. An optical fiber pigtail assembly comprising:

30

a) a laser disposed within a housing; and,

b) an optical fiber pigtail disposed within said housing, said optical fiber pigtail having an end of optical fiber for coupling light there into from the laser diode, the optical fiber pigtail having a first

5 region about the end that is metallized and soldered to one or more solder pads within the housing, the optical fiber pigtail having a second metallized region spaced from the first region by an other region wherein the second region is soldered fixedly within the housing, said other region being absent of metal to lessen heating that may otherwise occur in the presence of a high intensity light from the laser passing therethrough; and lensing means for coupling light from the laser diode into the fiber end.

10 14. An optical fiber pigtail assembly as defined in claim 13, wherein the optical fiber pigtail is a multimode optical fiber.

15 15. An optical fiber pigtail assembly as defined in claim 8 wherein the optical fiber pigtail is a multimode optical fiber.

16 16. An optical fiber pigtail assembly as defined in claim 8 wherein the first metallized region along an optical axis of the fiber pigtail is of length L_1 and wherein no more than 0.5 mm of length of the first metallized region on either side of a solder joint is unsoldered.

20 17. An optical fiber pigtail assembly as defined in claim 16 wherein a portion of the first region soldered to one or more solder pads has an unsoldered metallized portion extending from the solder and wherein the unsoldered metallized portion is less or equal to 0.5mm, and wherein any unsoldered metallized.

25 18. An optical fiber pigtail assembly as defined in claim 1, wherein the first region has length along an optical axis of the fiber pigtail of L_1 and wherein the other region has a length L_3 along the optical axis of the fiber pigtail, and wherein a ratio of $L_1:L_3$ is at least 1:3.

30 19. A method of fabricating an optical fiber pigtail assembly comprising the steps of:
fixedly providing a laser diode within a housing in a predetermined orientation;
stripping a portion of an optical fiber to provide an optical fiber pigtail;
coating to metallize at least two separate regions of the optical pigtail so as to leave an uncoated region there between, the uncoated region being substantially larger than each of the coated regions;
grasping the pigtail end with tweezers having non-metallic grasping ends;

placing the optical fiber pigtail in the housing such that an end of the pigtail is oriented to couple light from the laser diode; and,
soldering the at least two metallized regions to solder pads within the housing.

5 20. A method as defined in claim 19 wherein one of the metallized regions furthest away from the end of the pigtail is soldered to a snout of the housing to seal therewith.

21. A method as defined in claim 20 further comprising the step of placing a getter within the housing.

10